

30 ICT fans the flames of learning: University of Groningen introduces Nestor

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Abstract

In the spring of 2000, the University of Groningen (RUG) launched a university-wide ICT in Education programme: the electronic classroom (EC). In this case that means a kind of distributed learning in which IT-opportunities were mixed with traditional classroom management. Now the pilot year has ended successfully. In the academic year 2000-2001, more than 8,500 students (roughly half of the total number of students at the RUG), and 500 teaching staff made use of Nestor – as the EC has now been christened. This article describes how the EC was implemented.

The article focusses on the project organisation, choosing the learning platform and the phases in the project.

One of the main conclusions we can draw from the project is that the introduction of new ICT facilities for teachers is more successful if they can be involved in a hands-on capacity at an early stage.

Another main conclusion is that the project is a costly one. Now it is completed almost Euro 1.5 million will have been spent over a period of eighteen months.

The RUG has taken an important first step by introducing Nestor but there is still a great deal to be done:

1. Prelude

On April 28, 2000, the university's Executive Board announced the EC-project to all departments. Prior to this announcement, bilateral discussions had been held with all eleven departments. The department boards, either independently or jointly with other departments, submitted several grant applications for ICT in Education programmes. The outcome of the bilateral discussions was no less than the launch of a university-wide EC project, with total funding of NLG 4 million (appr. USD 1.5 million) provided by the Executive Board and departments, and a project strategy based on the active participation of all departments at management and staff levels. In short, the plan required sufficient management support, people and resources to achieve the desired objective: the implementation of a university-wide electronic classroom as of 1 September 2001. The project organisation was outlined in the project plan, and is shown in Figure 1.

The project organisation is based on the following principles:

- Active involvement of departments at management and staff levels. All proposals relating to the project are only to be submitted to the EC steering group after approval at the regular meetings of departmental contact persons, who then inform their department managers.
- Establishing in advance which expertise, tasks, interests and responsibilities are involved during and after the project, and making maximum use of the knowledge and experience of existing divisions within the university. After all, there is a strong possibility that, in one way or another, these organisations will have to take on these tasks once the project phase has ended. Thus there are two reasons for involving them during the development phase: their expertise and creating a support base within the university for the project – something that should not be underestimated.
- Active involvement of teaching staff and students in the main project decision-making process. Although the organisation and structure of the project are crucial, it is provisional in terms of the ultimate aim: effective use of ICT in education by those teachers and students.

The project is based on an implicit decision to implement a single, university-wide system. This would seem an obvious starting point because it is great fun for teachers and students who do not confine themselves to their own disciplines. It will also lead to greater efficiency with regard to technical infrastructure and exchanging information with other institutions. Nevertheless, many institutions have chosen not to go down this path and, who knows, they may be right!

2. 'Dry run' during the summer

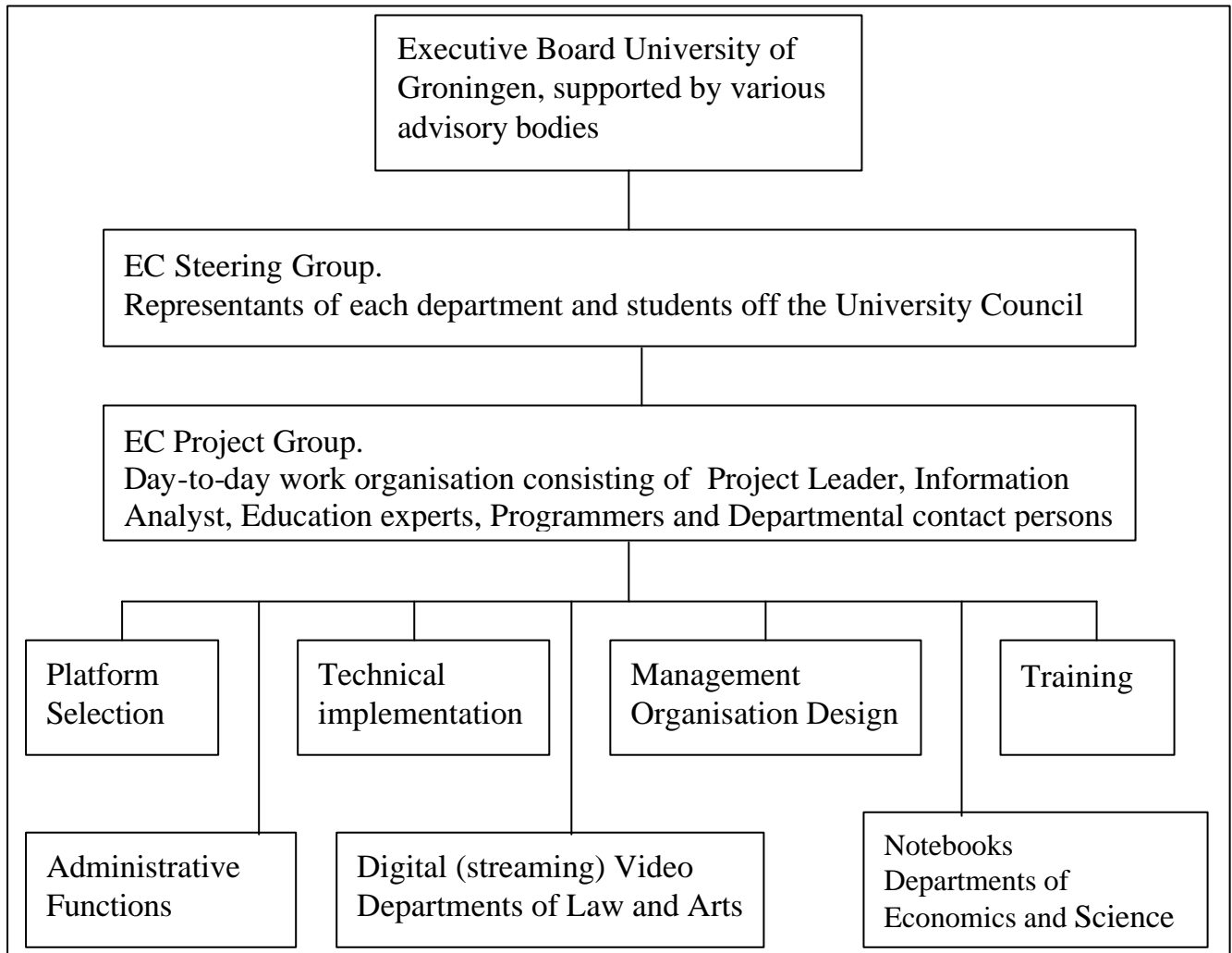
It is obvious that a project must have a sound structure; this is the first step to achieving results. But what is the next step? Two main aspects were realised in the summer of 2000, the project organisation and the selection of the learning platform.

With regard to the first aspect: proposals on training, technology, etc. were put forward by the relevant EC working group (see organizational chart). The proposals were discussed at the regular meetings attended by departmental contact persons, who were also members of the working groups. The EC steering group finally approved the project proposals and allocated the requested budget. This meant that

the departments were actively involved in the project organisation and, on the basis of their overall picture, could help to bite the bullet at various stages in the project. This whole process required active support, which was provided

by ECCOO (the Centre of Expertise for Computer-aided Education) with regard to substance and procedures.

Figure 1. Organizational Chart : RUG electronic classroom



The second aspect was even more interesting: choosing the learning platform for the RUG. To make the selection process easier, a shortlist was compiled from the many alternatives. On the shortlist were Blackboard, Intralearn and WebCT. These three systems fulfilled the requirements for the platform, namely a tangible product already used in education; an education-oriented platform that was compatible with the RUG's technical infrastructure; suitable for use on a large scale, etc. Each shortlisted system was put through an intensive selection procedure. In mid-July 2000, six evaluation sessions were held with teaching staff and students. The suppliers' instructors briefly explained each system, which participants then tested. This produced useful results in terms of learning aspects, user-friendliness, and other aspects relevant for teachers and students. At the end of July, a six-

strong project delegation left for the US and Canada, where they visited the system suppliers and universities using the systems. They collected a great deal of information and, on the basis of this, Blackboard 5 level3 was chosen. The EC steering group announced its decision on August 22, 2000 and one week later Simon Kuipers, Chairman of the Executive Board, signed the contract with Blackboard Inc..

3. Term 1: the pioneering phase

After a week of hard work by Computing Centre staff, Blackboard went on-line in the second week of term 1. In the meantime, the department contact persons went in search of 'pioneers': teaching staff who were willing to introduce Blackboard into their teaching right away. The search was

successful. In each department there was at least one person prepared to do this. The electronic classroom was thus launched with a total of 18 participating lecturers and 500 students. The aim was to extend the user group by means of the oil-slick model in the second and third terms to 50 resp. 250 lecturers, and 2,500 resp. 6,000 students. The lecturers were not simply left to fend for themselves with the system; ECCOO provided individual supervision and they received training (provided at that stage by Blackboard). During the first term, an in-house Blackboard course was developed that covered not only the functions of the system, but also didactic aspects such as using the system in a practical learning situation. The main advantage of this approach was that defects could be identified early on and small scale modifications made. For example, it turned out that the software uses a lot of memory. The Computing Centre devised what has now become known among other user groups as the *Groningen patch*. The Learning Platform Selection working group was then disbanded as it had completed its task.

4. Term 2: first expansion

The main question was, of course, is Blackboard catching on? Are the pioneers and the students enthusiastic? The answer to both questions was affirmative. This was confirmed by the fact that, in the second term, a total of 70 lecturers and 2,500 students from all departments were using Blackboard. In the second term, the expansion involved other aspects such as designing and purchasing robust hardware (web and file servers), setting up a helpdesk manned by initially four teaching assistants, and setting up support for lecturers within the departments. The hard work had now begun for the Management Organisation Design and Technical Implementation working groups. Whereas in the first term the names of Blackboard users were entered by hand, in the second term this was done by means of a link to ProgRESS-WWW, an Internet application developed and used by the RUG allowing, for example, students to register for courses and exams.

The work of the Administrative Functions working group (objective: integration with other administrative systems) and the Technology working group resulted in a 10-page document listing wishes and requirements, questions and technical defects relating to the Blackboard software. This document was sent to a number of Dutch universities that use Blackboard on an institution-wide basis, or plan to do so. A mini-symposium was held at Groningen with representatives from the University of Amsterdam (UvA), Free University of Amsterdam (VU), University of Nijmegen (KUN), Tilburg University (KUB) and Erasmus University Rotterdam (EUR). The Delft University of Technology was unable to attend. The document referred to above was discussed with Blackboard in Washington. This resulted in a great deal of useful information and contacts. However, this did not mean that all our wishes could be met, e.g. full facilities for working with foreign language fonts or formulas. The program is now so

extensive that making modifications is a major undertaking. Within this context, Blackboard's absolute priority is to publish new versions whose content has been decided long ago. In fact, there is no time for interim software modifications. Blackboard release 5.5 is now on the market, and has been in use at the RUG since September 1, 2001. The new release offers teaching staff some useful extra facilities, and links to other administrative systems have been facilitated.

The pilot year was officially launched in December 2000 with an EC conference. The name of the electronic classroom – Nestor – was revealed, and the law student who came up with the name was presented with an electronic notebook. Nestor was an elderly learned counsellor from Greek mythology. Nestor balances the centuries-long history of the University of Groningen against fast, state-of-the-art ICT. The original purpose of Nestor was also emphasized: a student jury awarded Professor Gisela Redekers NLG 5,000 for the most interesting application of Nestor in teaching.

5. Term 3: second expansion

Towards the end of the project year we began to wonder whether the project would really succeed. Is Nestor an ICT & Education development with a future? In the third term we were able to answer these questions with a definite 'yes'. The number of lecturers using Nestor had risen to 500, and the number of users to 8,500 (including approx. 8,000 students) - far exceeding the target of 6,000. In addition, the support department was increased to seven teaching assistants in the third term. The in-house Blackboard training was repeated and adapted to the individual needs of the departments.

The Management Organisation Design working group completed its work. The EC steering group approved of the plan for a Nestor management structure, consisting of a combination of (a) reinforcement of the department support for ICT in Education by means of links to existing facilities, and (b) a Centre of Expertise for matters such as technical management, application management, educational expertise, innovation and institution co-ordination. This involves no less than 20 FTEs!

The RUG has not lost sight of Nestor's original purpose, namely to make a useful contribution to teaching. This was the theme of the second Nestor conference held on June 28, 2001, where Ed d'Hondt, president of the VSNU (Association of Dutch Universities) called for more resources for the irreversible trend of ICT in Education. In the third term, COWOG (Groningen Centre for Research into Higher Education) researched the use of Nestor by students and lecturers for teaching.

6. Epilogue

Nestor is now a household name at the University of Groningen. In itself this is not surprising, since more than half

of the students and a large number of staff at the university have been using Nestor. The number of users is still increasing since September 1, 2001 when approximately 12,000 students and lecturers had been using Nestor. This figure includes first-years students who will use Nestor for standard study purposes, albeit not 100% in all subjects, and the majority of students beyond the first year. The Executive Board, in consultation with the departments, decided to fund the plan for the temporary Nestor Management Structure for the years 2002 and 2003. After these two learning years, the expertise and management structure should be fully embedded in the university.

Does that mean that everything is done and dusted? No, certainly not. The RUG has taken an important first step by introducing Nestor but there is still a great deal to be done:

Nestor's added value for teaching will have to be developed further in co-operation with lecturers and students. The importance of achieving a perfect balance between real and virtual interaction lies not so much in a single ideal solution – which does not really exist – but primarily in achieving pro-active and appropriate use of Nestor's facilities in teaching.

New educational applications need to be found for information and communication technology. Nestor comprises more than the central learning platform, Blackboard. In 2002, a pilot project will be launched for Cytrix technology, which enables network software to be launched remotely via the Internet. This means, for example, that a simulation program linked to a specific computer/server can be made available to students in Nestor, without time or location restrictions.

Administrative efficiency needs to be improved. In 2003, the current electronic RUG course catalogue will be incorporated in Nestor. This is only one example of how existing systems will be either incorporated into or linked to Nestor in the near future.

Bottlenecks will have to be removed, e.g. ICT facilities for students, training for large numbers of teaching staff, availability of content and the everlasting problem of intellectual property rights.

7. Final word

In this paper we have outlined the University of Groningen's electronic classroom project. Of course, the project involved much more than this, and readers who are interested in the juicy details are welcome to pay us a visit. The first conclusion we can draw from the project is that the introduction of new ICT facilities for teachers is more successful if they can be involved in a hands-on capacity at an early stage. During the course of the project, it has been proven that Blackboard was the best choice, despite its shortcomings. Information about the software bugs can be found at the Nestor site. Teaching staff are now also familiar with the program's limitations, for example the test facilities. The program nevertheless offers enough facilities to be enthusiastic about, and it is important

to communicate honestly with teachers and students about both its benefits and drawbacks.

The second conclusion is that the project is a costly one. When it is completed at the end of this year, almost USD 1.5 million will have been spent over a period of eighteen months. The Nestor management structure was launched on January 1, 2002, and will cost approximately USD 1 million per year – and this only covers the visible costs. The figure does not include invisible costs incurred mainly within the departments by lecturers and support staff who have to adapt their courses, or the cost of training large groups of staff, or the ICT infrastructure for teachers and students. Internet access is not yet fully available to all students. Students who do have Internet access have to bear the costs themselves. In contrary to the USA, local calls are not free of charge in Europe. Food for thought for the Dutch Ministry of Education, Culture and Science.